force of the ball spline unit to the rotation shaft unit. Asai neither discloses nor suggests such features.

Asai discloses an electronic component mounting apparatus moveable in the x, y, and z directions by an x-axis slide 14, a y-axis slide 22, and a lift 28 supported by the y-axis slide 22, respectively. A projecting portion 48 of the lift 28 supports a mounting head 49, and a rotatable member 52 of the mounting head 49 is supported in a through hole 50 formed in the projecting portion 48 by bearings 54 and 56. The rotatable member 52 includes a small diameter axis portion 58 fit in the through hole 50 and an attachment portion 60. The rotatable member 52 includes a stepped through hole 80, with a large diameter hole 82 into which a support shaft 84 is inserted, and a small diameter hole 86 in an upper surface of the axis portion 58 into which a bolt 88 is inserted.

A large diameter portion of the support shaft 84 forms a splined axis portion 118 which supports a suction device 120, including a nozzle holder 122 and a suction nozzle 124, and a pair of coil springs 130 and 134 are fitted on the splined axis portion 118, on opposite sides of the nozzle holder 122, to absorb a vertical load applied to the nozzle holder 122. The suction nozzle 124 includes a suction pipe 152, which transmits a vacuum force through the nozzle 124 to absorb and hold an electronic component 178, and a cylindrical suction pipe holder 150 which supports the suction pipe 152 within the suction nozzle 124. A coupling 98, including numerous annular and radial passages, ensures that negative pressure can be supplied to a passage 94 formed in the support shaft 84, regardless of a rotational position of the rotatable member 52

relative to the projecting portion 48 of the lift 28, so as to supply adequate vacuum force to the nozzle 124. A ball spline 126 provided in the nozzle holder 122 is engaged with the splined axis portion 118 of the support shaft 84 to allow for rotation about the support shaft 84.

It appears the Examiner has drawn a comparison between the coupling 98 and the suction pipe holder 150 disclosed by Asai, and the plurality of couplings recited in independent claim 1. However, the coupling 98 merely allows for proper alignment of a number of air passages (see column 11, lines 29-40 of Asai), and Asai does not disclose or suggest that the coupling 98 transmits a rotary force from the support shaft 84 (considered the rotation central axis) to the ball spline 126. Further, the suction pipe holder 150 merely supports the suction pipe 152 within the suction nozzle 124 (see column 12, lines 30-35), and Asai does not disclose or suggest that the suction pipe holder 150 transmits a rotary force from the ball spline 126 to the suction pipe 152. Rather, Asai discloses that a rotational force generated by a θ-axis motor 76 is transmitted directly from the support shaft 84 to the ball spline 126, and then from the ball spline 126 directly to the suction nozzle 124. Asai does not disclose or suggest the plurality of couplings as recited in independent claimed 1, nor the combination of independent claim 1.

Accordingly, it is respectfully submitted that independent claim 1 is not anticipated by Asai, and thus the rejection of independent claim 1 under 35 U.S.C. §102(b) over Asai should be withdrawn. Dependent claims 2 and 4-5 are allowable at least for the reasons discussed above with respect to independent claim 1, from which they depend, as well as for their added features.

More specifically, as set forth above, Asai neither discloses nor suggests the first and second couplings as recited in dependent claim 2, nor the predetermined distances as recited, respectively, in dependent claims 3 and 4. Further, the bearings 54 and 56 disclosed by Asai maintain a position of the rotatable member 52 in the through hole 50 formed in the projecting portion 48, and Asai does not disclose or suggest a bearing fixed to a ball spline nut as recited in dependent claim 5.

Independent claim 6 recites, *inter alia*, a first coupling that rotationally couples the rotation unit to a first end of the ball spline unit, and a second coupling that rotationally couples a second end of the ball spline unit to the rotation shaft. As set forth above, Asai neither discloses nor suggests such features.

Accordingly, it is respectfully submitted that independent claim 6 is not anticipated by Asai, and thus the rejection of independent claim 6 under 35 U.S.C. §102(b) over Asai should be withdrawn. Dependent claims 7-9 and 12-14 are allowable at least for the reasons discussed with respect to independent claim 6, from which they depend, as well as for their added features.

More specifically, as set forth above, Asai does not disclose or suggest a bearing mounted on a ball spline unit as recited in dependent claims 8-9 and 11, nor the prescribed distances as recited, respectively, in dependent claims 12-13.

II. Rejection Under 35 U.S.C. §103(a)

The Office Action rejects claims 3 and 10-11 under 35 U.S.C. §103(a) as being unpatentable over Asai in view of Japanese Patent No. JP 8-326864 (hereinafter "JP '864") or Figure 1 of the present application. The rejection is respectfully traversed.

Dependent claims 3 and 10-11 are allowable over Asai at least for the reasons discussed above with respect to independent claims 1 and 6, from which they respectively depend, as well as for their added features. Further, JP '864 and Figure 1 of the present application are each cited simply to teach a spline unit having a spline nut and a spline shaft, and thus fail to overcome the deficiencies of Asai. Accordingly, it is respectfully submitted that claims 3 and 10-11 are also allowable over the applied combination, and thus the rejection of claims 3 and 10-11 under 35 U.S.C. §103(a) over Asai in view of JP '864 or Figure 1 of the present application should be withdrawn.

III. Conclusion

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. If the Examiner believes that any additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned attorney, **Carol L. Druzbick**, at the telephone number listed below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this,

concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
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